

National Aeronautics and Space Administration

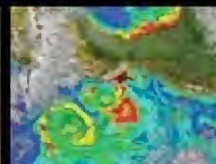
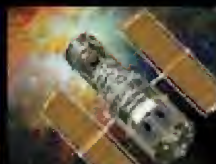


Marshall Space Flight Center

Powering the Future of Science and Exploration



marshall



www.nasa.gov

Steven C. Miley, Associate Director for Operations
Engineering Directorate
August 6, 2009

NASA's Strategic Goals

Retire the SHUTTLE by 2010

Complete the INTERNATIONAL SPACE STATION

Return to THE MOON by 2020

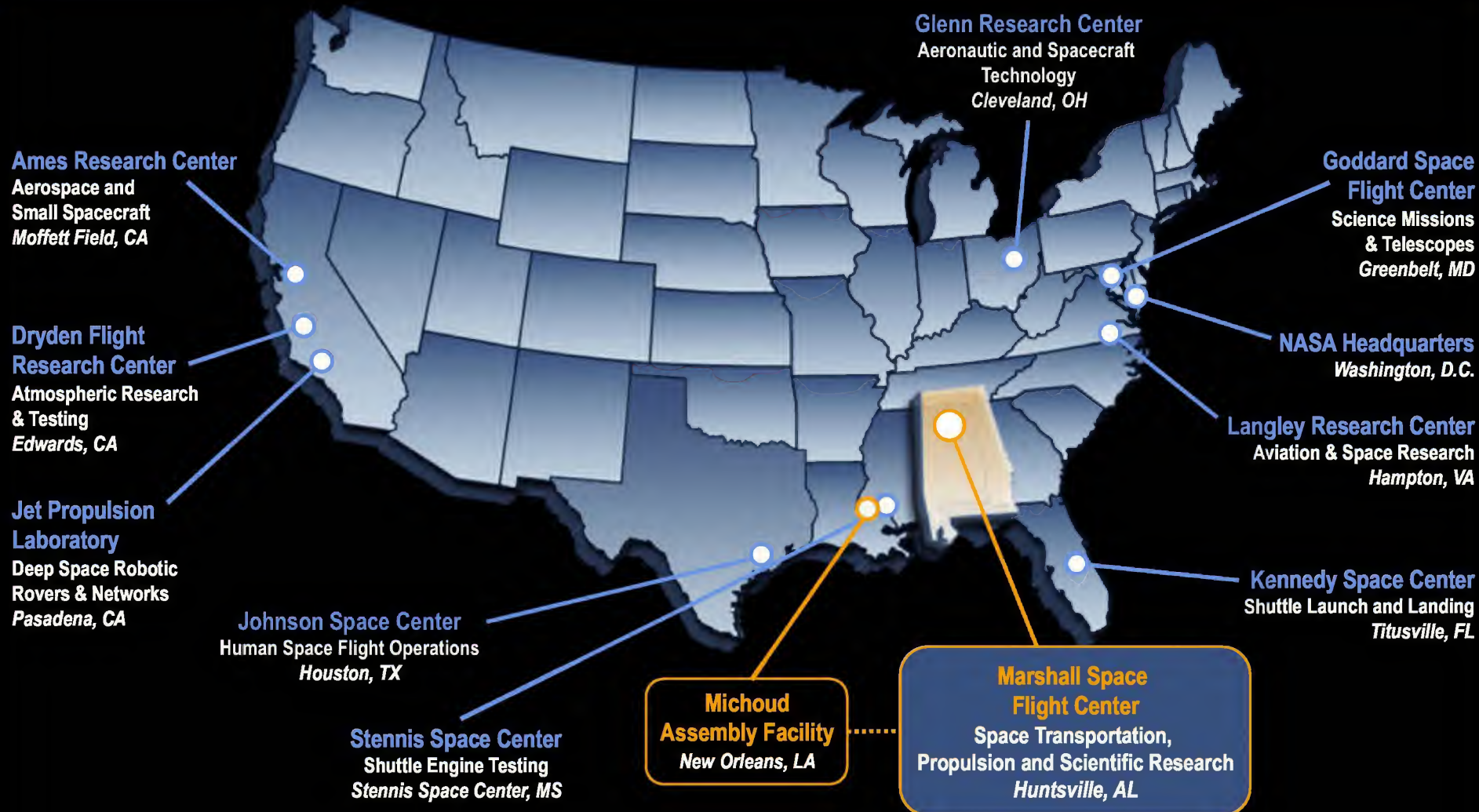
Carry out MISSIONS of SCIENTIFIC DISCOVERY

Advance U.S. TECHNOLOGY LEADERSHIP

Pursue PARTNERSHIPS with commercial space sector

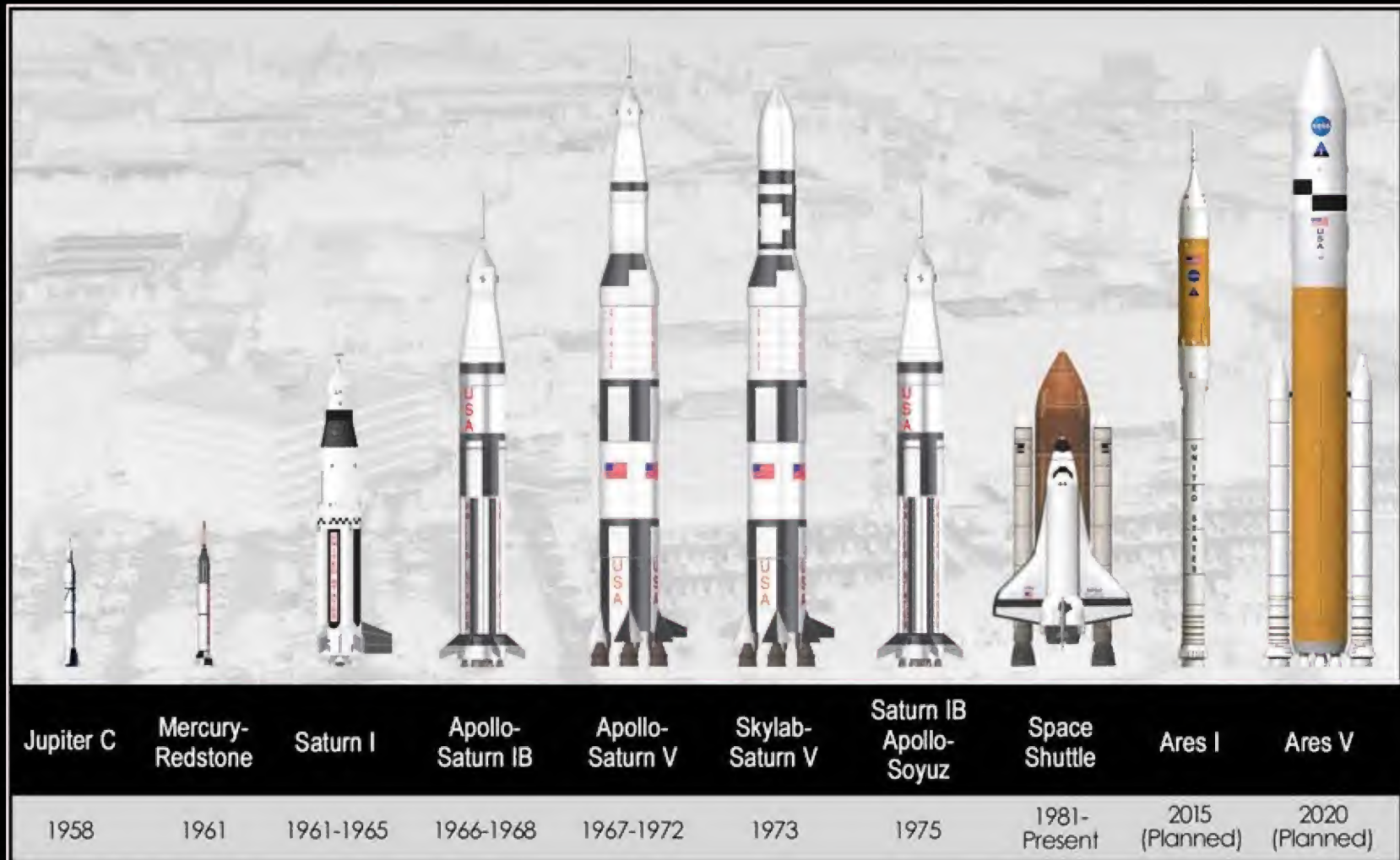
Provide critical capabilities to SUPPORT NASA's MISSION

NASA Around the Country



Marshall Is a Space Transportation and Science Center

Marshall's History



Delivering Space Transportation Solutions for 50 Years

Marshall's Missions

Earth and Space Science
Spacecraft, Systems, and
Operations

Life Support Systems

Propulsion and
Transportation
Systems

Making Possible Human and Scientific Space Exploration

Marshall Statistics: From Exploration to Opportunity



\$2.6 billion

budget in fiscal year 2008



6th largest

employer in the Huntsville -
Madison county area



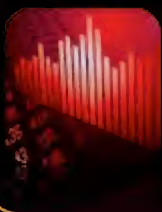
> 7,600

employees at Marshall
(2,634 civil service employees
in fiscal year 2008)



4.5 million

square feet of space
in Huntsville



\$1 billion

impact to Alabama economy



2.2 million

square feet of manufacturing
space at Michoud Assembly
Facility in New Orleans

Providing an Economic Engine based on Science and Technology

Propulsion and Transportation Systems

Shuttle Propulsion Sustaining Engineering

Main engines, external tank, solid rocket boosters

Transitioning to Ares/Orion for missions beyond Earth orbit

Best of Saturn and Shuttle technology used to develop future vehicles

Ares Design and Development

Successor to Shuttle for routine space access

Part of NASA's Constellation Program

First test flight is scheduled for 2009

Building and Sustaining Rockets, from Saturn to Shuttle to Ares

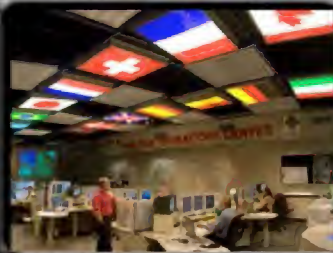
Life Support Systems

Current Work

- Producing clean air and recycling water
- Providing around-the-clock science operations support
- Making science experimentation possible in space

Future Work

- Exploration life support systems
- Radiation hardened electronics
- Altair Lunar Lander systems
- Lunar resources utilization



**Payload
Operations Center**



Lunar Resources



**Environmental
Control & Life Support**



**Altair Lunar
Lander**



Working in Space



Pioneering Technologies for Living and Working on the New Frontier

Earth Science

Environmental Monitoring

- Understanding climate change and weather patterns

Weather Prediction

- Improving forecasts and weather warning times

Hurricane Research

- Predicting the intensity and dynamics of storms



Global Hydrology & Climate Center



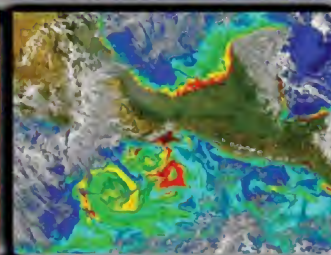
HIRAD



SPoRT



Environmental Monitoring



SERVIR



Understanding Our Planet to Improve Safety and Save Lives

Space Science

Preparing for human return to the Moon

- Robotic missions to search for water ice and gather data
- Program office at Marshall

Learning about our solar system

- Spacecraft to analyze the inner workings of the sun, planets, comets and asteroids
- Program management and instrument development

Learning about our universe

- Scientific instruments to reveal information about activity in deep space
- Management, design and construction



LCROSS



Hinode



Discovery/
New Frontiers



Chandra



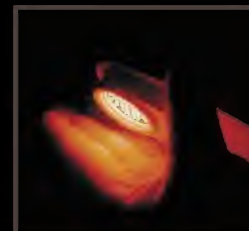
JWST/
Marshall XRCF

Gaining Knowledge about the Moon, Solar System, and Universe

NASA Innovation Creates New Jobs, Markets, and Technologies

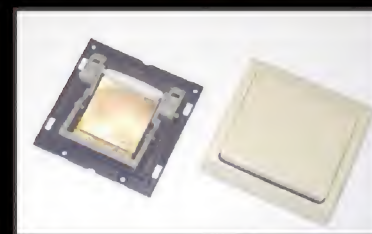
- **Personal Health**

- Eye tracker for LASIK surgery
- Breast biopsy system



- **Consumer Products**

- Wireless light switch
- Remote appliance programmer
- Global Positioning Systems (GPSs)



- **Environmental**

- Water Filtration system
- Environmentally friendly
- Chemical cleanup



- **Security**

- Stair-climbing tactical robot
- Crime scene video enhancement



For more information see <http://technology.jsc.nasa.gov>

Every Dollar Invested in Space is Spent on Earth

NASA Inspires Future Generations of Explorers

- **The Great Moonbuggy Race**
 - 75 student teams from around the world
 - More than 500 high school, college, and university students
 - Designed and raced their rovers on a simulated Moon-scape
- **NASA Student Launch Initiative**
 - 450 middle and high school students participated in 2009
 - Built and flew reusable rockets to 1-mile high with a science payload
- **Students need motivating goals and teachers with information to share**
- **NASA continues to develop educational tools and experiences that inspire, educate, and motivate**
- **Space exploration offers new economic opportunities through technology and resource development**



Learning through Teamwork

Why Explore?

International Collaboration
Technological advancement
Scientific discovery
Economic opportunity
National security



Bringing the Benefits of Space Exploration down to Earth



For more information

www.nasa.gov